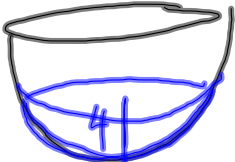
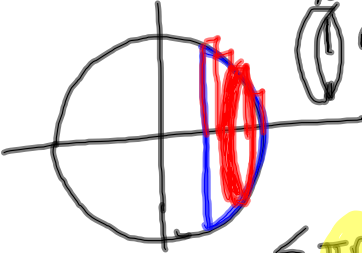


22.



$x^2 + y^2 = R^2$ *lam* *disk*



a) $x^2 + y^2 = 8^2$

$r = 4$

$r^2 = y^2 = 64 - x^2$

$f(x) = \pi(64 - x^2)$

define \uparrow

$\text{lam}(4, 8, 8)$

b) exact $\frac{320\pi}{3}$

error $\left| \frac{320\pi}{3} - 372.279 \right| = 372.279$

$= 37.175$

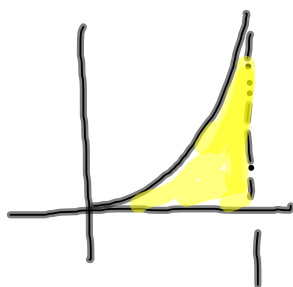
% error $= \frac{37.175}{\left(\frac{320\pi}{3}\right)} \times 100\%$

$= 11\%$

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5.2 exact areas: definite integrals

find the exact area under $y = x^2$ on $[0, 1]$



$$= \lim_{n \rightarrow \infty} \text{RAM}$$

$$= \lim_{n \rightarrow \infty} \sum_{i=1}^n f(x_i) \cdot h$$

$h \rightarrow 0$

$$h = \frac{b-a}{n}$$

exact area $= \lim_{n \rightarrow \infty} \text{Riemann Sum}$

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define $f(x) = x^2$

area with
 n rectangles

$$\text{rRam} \left(\begin{matrix} 0, 1, n \\ (L_{\text{ram}}) \end{matrix} \right) = \frac{(n+1)(2n+1)}{6n^2}$$

$n = \text{number of rectangles}$

$$\lim_{n \rightarrow \infty} \frac{2n^2 + 3n + 1}{6n^2} = \frac{1}{3}$$

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definite integral

$$\lim_{\substack{n \rightarrow \infty \\ h \rightarrow 0}} \sum_{i=1}^n f(x_i) \cdot h = \int_a^b f(x) dx$$

together

Nov 16-12:49 PM